

The effects of video game-based exercise in preschool-aged children

January 9 2019



Credit: University of Minnesota

The prevalence of childhood obesity has more than doubled (6.5 percent to 16.9 percent) in the United States over the past three decades, partially due to low physical activity. Today, few school settings offer

opportunities for preschool children to engage in structured physical activity, let alone structured physical activity in the form of exergaming—active video games that are also a form of exercise.

It is why, in a recent study from the University of Minnesota's College of Education and Human Development's School of Kinesiology, researchers examined the effect of a school-based exergaming intervention on [preschool children](#)'s health outcomes. Researchers specifically looked at perceived [competence](#) (i.e., a child's self-evaluative judgment about their ability to accomplish certain tasks), motor skill competence and physical activity among the children. They then compared it to usual care (i.e., recess).

The study was published in the *Journal of Sport and Health Science*.

"The preschool years, between the ages of four and five, have been identified as a crucial time to promote healthy lifestyle habits, which could assist in the prevention of obesity and [chronic diseases](#) as children age," said Zan Gao, associate professor in the School of Kinesiology and lead researcher on the study.

Researchers looked at a total of 65 preschool children from two underserved urban schools. One group of students participated in usual care recess (100 minutes of recess per week for eight weeks). The other group of students participated in exergaming intervention with a Nintendo Wii or Xbox Kinect for that same amount and period of time. All children underwent identical assessments.

The study showed:

- exergaming has shown a positive effect in promoting preschool children's moderate-to-vigorous physical activity at school;
- exergaming has the potential to enhance preschool children's

- perceived competence and motor skill competence;
- preschool is critical for children's development of motor skill competence, as preschool children's motor skill competence increased even after eight weeks under both types of exercise;
- preschool boys demonstrated higher levels of moderate-to-vigorous physical activity than girls did at school.

"It is important to start intervention early in life so the child can realize the benefits and importance of physical activity and can start developing a physically active lifestyle when young," said Gao. "Exergaming serves as an excellent intervention channel for preschool children due to its fun and exercise components."

Researchers point out that future studies should focus on preschool [children](#)'s perceived enjoyment during exergaming versus comparison modes of physical activity, with follow-up examination to discern whether the potentially greater enjoyment of exergaming promotes higher daily [physical activity](#) in later childhood. Future studies should also include larger sample sizes and longer study durations.

More information: Zan Gao et al. Effects of exergaming on motor skill competence, perceived competence, and physical activity in preschool children, *Journal of Sport and Health Science* (2018). [DOI: 10.1016/j.jshs.2018.12.001](#)

Provided by University of Minnesota

Citation: The effects of video game-based exercise in preschool-aged children (2019, January 9) retrieved 18 July 2023 from <https://medicalxpress.com/news/2019-01-effects-video-game-based-preschool-aged-children.html>

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